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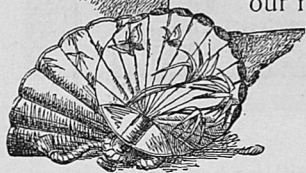
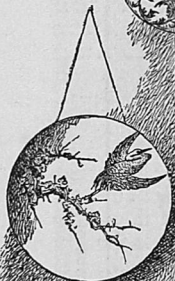


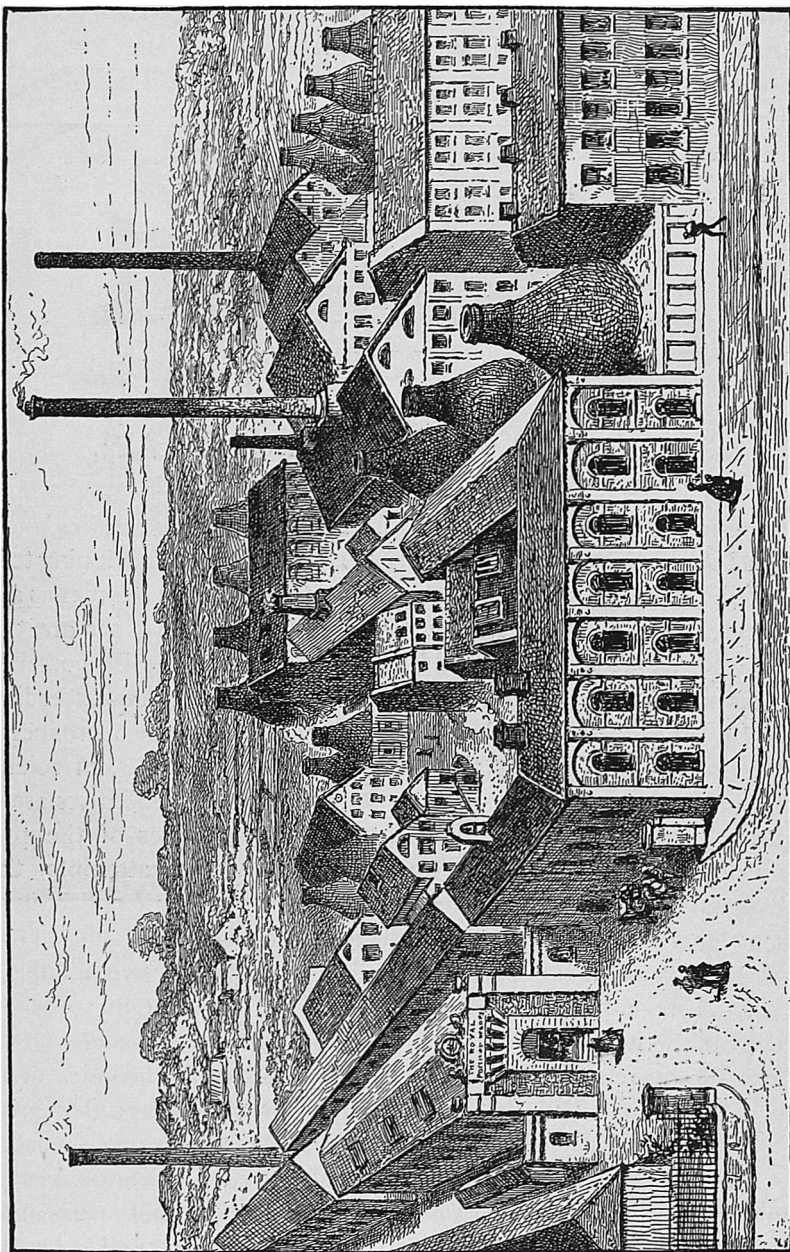
## WORCESTER PORCELAIN.

**I**T was at that interesting period of England's history when her statesmen were beginning to invent schemes of taxing the American colonies as a means of relieving home burdens, that her great porcelain manufacture had its birth. The first English porcelain was made at Stratford-le-Bow in 1740, and in the succeeding fifty years the impulse was given which has since produced such splendid results. It may be premised, however, in solemn admonition of those American potters from whom we are accustomed to receive apologies for the crudities of the products they are placing upon the market as first attempts, that the early efforts of many of the enterprising English inventors reached a point of excellence which has never since been surpassed, the pioneers of the industry in several lines being regarded as its old masters. If, as Dr. Prime and other learned writers contend, the art of the potter, on account of its permanence, takes precedence of all others as the index of human character in the successive epochs and varying conditions of our race, it is but just that the fame of Cookworthy, Dr.

Wall, Billingsley, and Wedgwood should have gone on increasing, while so many of the distinguished personages of that day, then supposed to be enacting far higher parts in the great human comedy, are forgotten.

Dr. John Wall, who on June 5th, 1751, founded the Worcester Porcelain Co., with a capital of £4500, must have been a remarkable man, uniting qualities as a chemist and inventor with fine taste and the enterprise of a shrewd man of business. The original ware invented by him was an artificial soft paste with a lead glaze, materially different from the soft French porcelains then made at St. Cloud and Vincennes, and the English ones of Bow and Chelsea.





THE ROYAL PORCELAIN WORKS.

At that time neither soap rock nor china clay had been discovered in England, yet so well did this composition imitate the true Oriental egg-shell porcelain, made of natural clays with a felspathic glaze, that it is said even the French ceramist, Brongniart, was de-

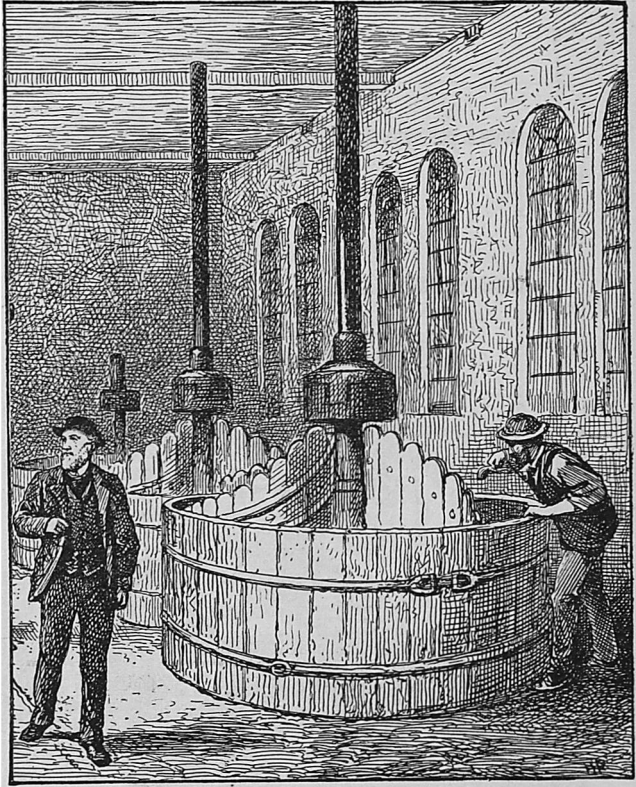
ceived by it till he had tested it with a file. This incident may lack authentication, but it is certain that the bric-à-brac hunter of to-day needs neither the skill nor the file of Brongniart to distinguish genuine Worcester porcelain from the imitations of it which American

factories are putting forth, nor is there any prospect that future collectors will ever be called upon to pay for these the enormous prices now brought by specimens of Old Worcester. Dr. Wall also originated transfer painting on porcelain, which, while not strictly artistic work, is yet an ingenious and interesting mechanical operation, has done much to place pretty wares within the reach of people of small means, and has been since applied to many useful purposes. First used to print patterns in blue, imitating the Chinese, it is now (while still applied almost identically by others for common wares) only availed of in the Worcester works to give outlines, which are then colored by hand.

Of much higher artistic interest is the Worcester enamel, in which rich effects in gold were obtained, particularly in powder blue and *bleu de roi* salmon scale grounds excelling the softer glazes of Sévres and Chelsea. Dr. Wall died in 1776 — just twelve years before King George III.'s visit to the Worcester works, when he granted his warrant bestowing upon them the title of "Royal."

Of the ware manufactured from 1786 to 1798, that decorated by Humphrey Chamberlain, son of the senior partner, is most highly prized by connoisseurs, much of it being masterly, his flower pieces, particularly, of exquisite finish, though comparatively few in number,

as he died at thirty-two. The Chamberlains supplied the Prince Regent with a service costing £4000, and



THE MILL.

the East India Company one for £4190. In the early part of the present century the liberal patronage of the King and Royal Family gave a great impetus to the business of the Worcester production of fine porcelain and artistic goods. Perhaps owing to a long season of high prosperity, the London Exhibition of 1851 showed the necessity for meeting the great improvements in other wares. Special efforts were exerted for the Dublin Exhibition of 1853, at which the exhibit received favorable notice for originality of design and excellent execution. The Worcester enamels in the style of those of Limoges were intro-

duced in 1854, and maintained a high reputation during the life-time of the artist Bott. These, however, like so many of the successes of the Worcester Co., were founded upon clever imita-

in 1876,—and at Paris in 1878. At the last-named exhibition many new Worcester decorations were shown, introducing modeled golds of various tints and new designs in ivory and



THROWING AND TURNING ROOM.

tion of other works, and it is a pleasure to record the invention of the celebrated Ivory Porcelain in 1856—an original idea. It is a beautiful body used for decorative objects, vases, figures, etc., its delicate tone harmonizing in a singularly effective manner with the colored golds and bronzes that have been applied to it with more and more success for the past few years. At the London Exhibition of 1872 these embellishments were commenced on the ivory ground,—more fully developed at Vienna in 1873,—at our own Centennial

white porcelain. Great improvements in harmonious tints and delicacy of decoration have, however, been made within a short time, and the illustration on page 40 shows probably the finest vase of the Royal Worcester ivory porcelain that has yet been brought to America.

This vase is grand in its proportions. The globe body being raised on an elegant foot, sets off the outline and shows the beautifully designed handles which rest on the shoulders and join the tapering neck. It is thus a very ele-



gant object as it comes from the potter. When taken in hand by the decorator he accepts its Oriental type and makes his design accordingly. The surface being broad, he has covered the body with an elegant scroll work in subdued tints and then placed bands of rich bronze around it, on which he has introduced a wreath of encrusted gold in high relief. The foot is decorated with bands of iron enriched with gold. The neck is paneled with pierced work and the handles are enameled to imitate Lapis Lazuli, encrusted with

the Worcester works will pass through, on an average, at least eighteen hands or processes, viz.: the miller, the slipmaker, the preparer of clay, the baller, the thrower, the carrier, the turner, the handler, the biscuit fireman, the scourer, the dipper, the glass fireman, the sorter, the printer, the painter, the gilder, the enamel fireman, and the burnisher. In the mill are gathered and ground together the heterogeneous substances, brought not only from various districts of England, but some of them from other



PRESSING ROOM.

gold. • The elegant pierced gallery round the shoulder and the various gildings and chasings on the neck complete a most beautiful object.

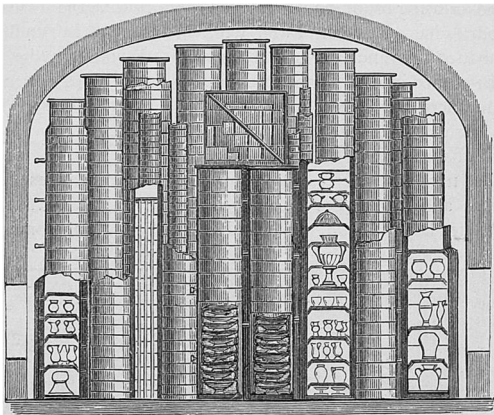
In manufacturing, an ordinary piece at

quarters of the globe. In making the porcelain itself are used china clay, china stone, calcined flints, felspar, and calcined ox-bones, the greater quantity of which are from South America,

though a certain proportion of home-prepared bones is adhered to to obtain an increment of carbon not found in the others. For the glazes, borax, lead, flint, Cornish stone, and other ingredients are employed. Much attention is given to the grinding of the materials, which takes from 12 hours to 6 days, and is done in large, strong pans or vats 10 ft. in diameter and 3 ft. in depth, each having an upright center shaft to which is attached four radiating curved arms which move the grinding stones.

The materials are reduced to the consistency of cream, every particle being required to strain through silk lawn

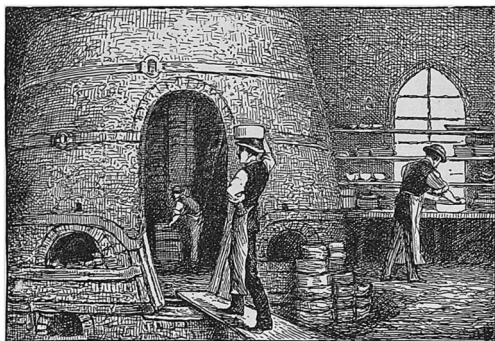
grinding, but in what is called the "clay-house" are worked into a uniform creamy mass. The substance from the mill and clay-house is pumped



INTERIOR OF BISCUIT OVEN.

to the "mixing-house" into pots in which revolve rows of magnets to remove any particles of iron, after which

the mass passes through a series of sieves worked by machinery and is then pumped into the clay press, where it is received in chambers lined with linen bags, where by hydraulic pressure the water is expressed from it until it assumes the consistency of paste. This paste is then taken to the clay cellar



BISCUIT KILN AND PLACING HOUSE.

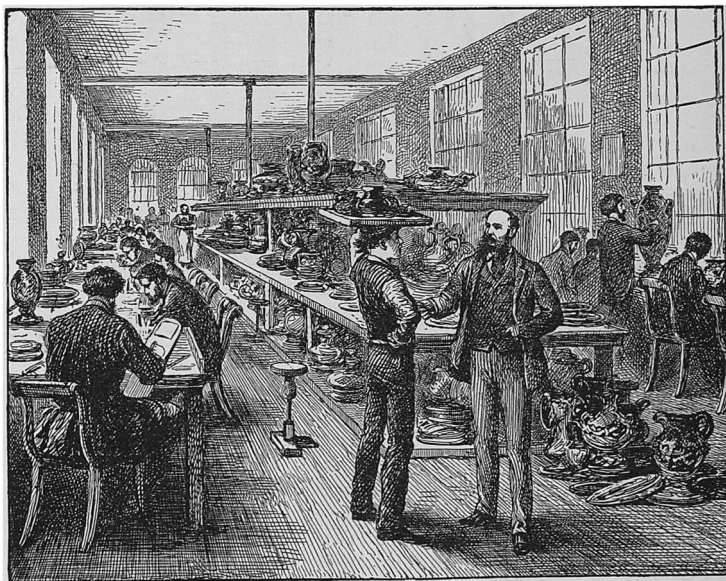
having about 4000 meshes to the square inch. The glaze materials and the colors are also ground here.

Some of the clays do not require

where, by repeated beating and kneading, the requisite toughness and homogeneity are imparted, to fit it for the workman.

The usual methods of manufacture are three, "throwing," "pressing"—in both which the clay is in a state of paste—and "casting," in which it is in the creamy condition. Plain circular articles, such as cups, bowls, jugs, teapots, etc., are made by the thrower on the potter's wheel, the oldest mechanical contrivance connected with the art

or horizontal lathe before him, pressing it with both hands, the rotary movement causing the clay to rise in the form of a cone, which he then depresses and again allows to rise, finally inserting his thumb into the mass, fashioning the outside with the other hand. Steam power is now used and the speed of the wheel regulated with a



DECORATING ROOM.

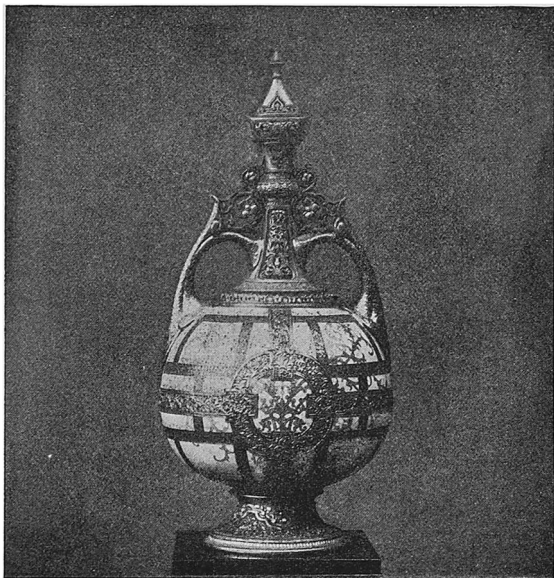
of pottery, having been used upward of 4000 years ago with little difference from the present, save that steam is now employed to revolve it instead of its being turned with the left foot, after the ancient manner.

The man who works at the wheel is called the thrower. He receives from his assistant a ball of clay which he throws upon the head of the wheel

motion of the foot. Formerly all cups and hollow pieces were made in this way, but the greater part of them are now fashioned in moulds, which not only insure correctness of size, but emboss patterns on the surface without extra labor.

So fully has the mould system superseded the ancient way that the articles made by the thrower at the





IVORY PORCELAIN VASE MADE BY THE WORCESTER CO. TO THE SPECIAL ORDER  
OF BAILEY, BANKS & BIDDLE. (SEE PAGE 36.)

Worcester works to show visitors the power and working of the potter's wheel are of no further use, cups being moulded and saucers "flat-pressed."

The turner fixes the ware upon his lathe and treats it much as if a piece of wood or metal, finishing the edges and outside surface. The handler puts on the handles of the cup or vase. They are pressed in moulds and fixed to the piece with a little liquid clay, which acts as a cement and unites the two parts when burnt in the oven. All objects with handles go through this process.

Plates are made by what is called flat-pressing, the clay being beaten out in round flat pieces like pancakes, and fixed to a mould on a horizontal lathe

called a jigger, covered with a disk of clay and pressed to the fast-revolving mould. After being touched up by the workman's tools, the plate and the mould are placed in the stove to dry, when the plate, contracting from the mould by reason of the heat, is taken off and finished in a semi-dry state. It is then ready to be burned. Soup tureens, covered dishes, ewers, basins, etc., are all made in moulds by what is called "hollow ware pressing." A slab of clay is carefully placed in the mould, bossed with a wet sponge, and pressed into every line of the pattern. The mould soon absorbs enough moisture to allow the clay to contract, when the piece is easily removed.

One of the most interesting processes

is the casting of the statuettes and groups. When the modeler has completed a figure or group, it is cut into pieces, sometimes as many as twenty or thirty, to be moulded, each part being cast separately in the same manner as cast-iron work, but for the extreme delicacy and the precautions taken by the mould-maker to leave the least possible seam. Like the molten metal of the iron-founder, the liquid, creamy china or "slip" is poured into the orifice of the mould till in a few minutes it solidifies sufficiently to be handled, when the "handler" arranges the various parts, trims off the superfluous clay, makes perfect joints with the liquid "slip," building up the whole piece, any excess of slip being removed from each joint with a camel's-hair brush. The object is then "propped" or supported with strips of clay having exactly the same shrinkage, and is ready for the oven.

One of the greatest difficulties encountered in pottery is the shrinkage of the clay, which from loss of water amounts often to fifteen per cent., and from a closer juxtaposition of the component particles, incident to the sensitive materials, from ten to fifteen per cent.; in all, sometimes twenty-five per cent., which is counteracted by fashioning the model that much larger than the figure is desired to be.

The tender ware is now ready for baking, which is done in large cases called "seggars," affording protection from the fire and smoke, and made of various shapes to suit the different wares,—flat, round ones for plates, each china plate requiring its own seggar and its own bed in it of carefully ground flint (as the plate will take the exact form made in the

flint bed);—oval ones for cups and bowls. The seggars when full are carefully placed in the oven, so as to equalize the pressure and avoid any toppling over of the piles of them. The cone-shaped oven, resembling a large bee-hive, seems to have been the approved form in all ages. It has generally about fourteen feet inside diameter, is built of fire-brick encased with bands of iron, and supplied with eight fire-places, with flues leading in from different directions. It takes about forty hours to fire, and is then allowed to cool for about forty-eight.

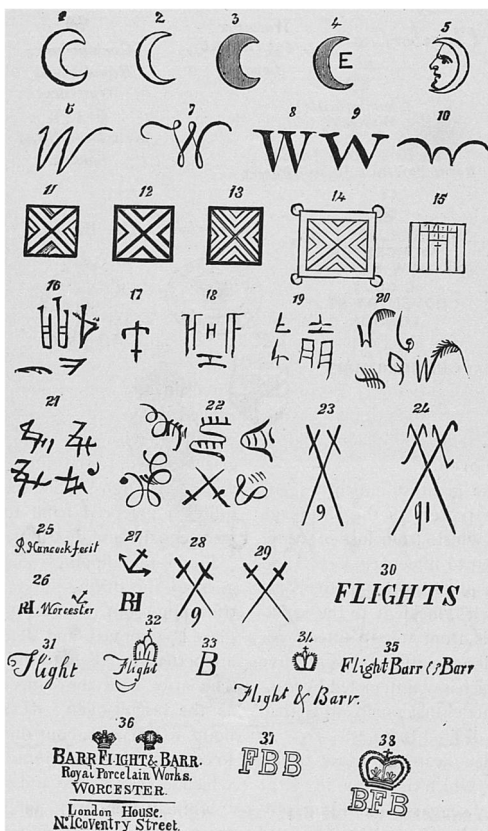
The porcelain when burnt is translucent and vitreous. It is no longer clay but biscuit, and is ready for the glaze. This is really glass, so prepared that when burned it will adhere to the porcelain, and not craze or crackle. It is applied in the "dipping-room," which is supplied with large tubs of the various glazes suited to the different kinds of ware. Though simple, the process requires a practiced hand to glaze each piece equally and distribute evenly.

From the dipping-room, the ware goes to the drying-stove, then to the trimming-room, where any superfluous glaze is removed, and defective places are perfected; then to the glost-oven. The latter is of the same construction as the biscuit-oven; it takes sixteen hours to fire, and about thirty-six hours to cool sufficiently to remove the ware, which is then sorted and stored in the "white warehouse" till it passes to the painters and gilders for decoration.

The most interesting department to visitors at the Worcester works is the "decorating-room," where are long lines of artists, embodying in permanent form their dreams of beauty. Never did work appear more unpromising than this,

in the earlier stages the colors being dull and the drawing unfinished. Not until the first "wash" has been burned and the painter has worked upon it for

etc. The painters are trained under special instructors from about fourteen years of age, thus acquiring a facility of manipulation of the colors, as well as



MARKS ON WORCESTER PORCELAIN. (SEE EXPLANATION ON PAGE 44.)

the second fire do the forms and finish in style and color begin to appear. The colors used are all made from metallic oxides,—copper giving green and black; cobalt blue; gold purple; iron red,

drawing, which it is found almost impossible to attain at a later period of life.

The elaborate and finely executed patterns in gold are all traced by the

gilder. Special training is required also in this department, correct drawing and clean finish being absolutely necessary.

printer's ink than the precious metal ; its true character being only revealed when it emerges from the enamel kiln.



MARKS ON WORCESTER PORCELAIN. (SEE EXPLANATION ON PAGE 44.)

The gold used is the purest to be obtained, but as ground and prepared with quicksilver and flux, it looks more like

As nearly all the decoration of porcelain is on the glazed surface of the ware, special kilns are arranged for

burning the colors and gold that they may adhere to or sink into the glaze, being similar to those used by goldsmiths, only much larger, and the time required being about six hours.

Coming from the enamel kiln, the ware is carefully sorted,—that requiring repainting or regilding being returned for the purpose and the finished ware sent to the “burnishing-room” for the last operation. The gold, from a dull yellow, is transformed by a burnisher of bloodstone or agate into a beautiful brightness.

Thus, from mechanical processes em-

bodying the patient life-thought of inventors long since passed away,—from skilled labor and the clever manipulation of talented artists, trained from early youth to this special work, come forth the things of beauty destined to delight kings and queens, poets and philosophers, statesmen, artists, soldiers, men and women of mark in all ranks of life, as well as the countless thousands whose love of art, though as great as that of any, does not suffice to lift them from obscurity, however it may brighten life and relieve the monotony of existence.

W. P.

#### EXPLANATION OF MARKS ON WORCESTER PORCELAIN.

Nos. 1, 2, 3 appear on all kinds of Worcester china from 1752 to about 1800. The crescent is the true Worcester mark; it was taken from one of the quarterings in the Warmstry arms.

Nos. 4 and 5.—The crescents with addition are not common; they are generally on blue ware.

Nos. 6, 7, 8, 9, 10.—The W mark is found on a great variety of patterns of early date.

Nos. 11, 12, 13 are the square marks so much sought after, and at present so freely forged.

Nos. 14, 15.—Also square marks, but not so common.

Nos. 16 to 22 are copies of Chinese and Japanese patterns, and generally appear on wares of that class.

Nos. 23 and 24 and 28 and 29 are imitations of the Dresden mark, but they appear on many styles of ware, sometimes even on black print.

Nos. 25, 26, 27 appear only on black transfer prints between 1756 and 1774.

No. 30 has been found impressed in the ware 1783 to 1791.

No. 31.—In blue under-glaze for the same period.

No. 32 appears on the Royal service made for the Duke of Clarence.

No. 33.—This letter is found scratched in the clay after Mr. Barr was taken into partnership; from 1793 to about 1800.

No. 34.—From 1793 to 1807.

Nos. 35 and 37.—From 1807 to 1813.

Nos. 36 and 38.—From 1813 to 1840.

No. 39.—Used by Chamberlains, written with and without “Worcester,” from 1788 to about 1804.

No. 40.—Written on specimens, 1814.

No. 41.—Printed mark used from 1814 to about 1820.

No. 42.—Printed mark used from 1820 to 1840.

No. 43.—Printed mark used between 1840 and 1845.

No. 44.—Printed mark used in 1847.

No. 45.—Used between 1847 and 1850; sometimes impressed in the ware, and at other times printed upon it.

No. 46.—Mark used in 1850 and 1851.

No. 47.—Mark used by Kerr and Binns from 1852 to 1862.

No. 48.—Mark used by Kerr and Binns on special pieces.

No. 49.—Mark used by the present Company from 1862.

The figures in the concluding series are considered to be workmen's marks, and are generally, if not exclusively, found on blue painted wares.